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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,472	02/02/2001	Masaaki Hiroki	SEL 238	7144

7590 02/28/2003

COOK, ALEX, MCFARRON, MANZO  
CUMMINGS & MEHLER, LTD.  
200 West Adams St., Suite 2850  
Chicago, IL 60606

EXAMINER

CLEVELAND, MICHAEL B

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/776,472

Applicant(s)

HIROKI ET AL.

Examiner

Michael Cleveland

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 6,7 and 10-30 is/are pending in the application.
- 4a) Of the above claim(s) 13-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6,7,10-12 and 19-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION*****Election/Restrictions***

1. Applicant's election by prior presentation of Group II, claims 6-7 and 10-12 in Paper No. 7 is acknowledged. Applicant traverses the rejection on the ground(s) that the amendment overcomes the reason for restriction. This is not found persuasive because, while the amendment overcomes the prior reason for restriction, the amended claims are still restrictable for another reason. Claims 13-18 (Group IV) are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Inventions II and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as applying the liquid without forming particles in the nozzle and without using electric voltage. See MPEP § 806.05(d).

The requirement is still deemed proper and is therefore made FINAL. Accordingly, claims 13-18 are withdrawn from consideration as being directed to a non-elected invention. Claims 19-30 are drawn to the invention of Group II.

2. This application contains claims 13-18 drawn to an invention nonelected in Paper No. 7. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Information Disclosure Statement***

3. The information disclosure statement filed 2/10/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. (Page 31 of 09/685,698 was not legibly copied.)

4. The information disclosure statement filed 2/10/2003 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 6, 10-11, 19-20, 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (WO98/24271, hereafter '271. References made are to the English equivalent, US Patent Application 2002/0041926) in view of Horike (U.S. Patent 4,281,332, hereafter '332).

Claims 6 and 20: '271 teaches filling an ink-jet nozzle with ink (an application liquid) for forming an electroluminescent (EL) layer and applying it to a pixel column (Abstract; Fig. 1).

'271 does not explicitly teach that the ink-jet nozzle works using ultrasonic oscillation, but instead teaches the use of a vibration pulse pressure dispenser (See [0083]-[0087]). '332 teaches a particular pulse pressure dispenser (col. 1, lines 6-11), which uses ultrasonic vibrations (i.e., oscillations) in order to provide pressure pulses (col. 3, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the ultrasonic vibrator of '332 as the particular vibrator of '271 with a reasonable expectation of success because '332 demonstrates that ultrasonic vibrations are capable of providing the pressure pulses to operate ink-jet printing nozzles.

Claims 10-11, 22-23: '332 teaches that the ultrasonic vibrations provide pressure pulses that eject the droplets (col. 3, lines 1-15).

Claims 19, 24: '271 teaches that the ink-jet printer prints between partition walls (banks) (105) covering at least an edge portion of pixel electrodes (101, 102, 103). (Fig. 1; [0043]-[0050]).

Claim 20: '332 teaches that a heater may be provided to control the viscosity of the ink (col. 11, lines 5-26).

8. Claims 7 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Horike '332 as applied to claim 6 and 20 above, and further in view of Fujimura '803.

'271 and '332 are described above. '271 demonstrates that the orifice may have a smaller inside diameter than the rest of the nozzle (Fig. 11), but does not explicitly teach the provision of a heater on the orifice. '332 teaches that a heater may be provided to control the viscosity of the ink (col. 11, lines 5-26).

'803 teaches that the thermal energy for ejected ink jet droplets may be provided by heaters at the orifice (col. 2, lines 40-45; col. 5, lines 35-68). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided heaters at the orifice (which has a smaller diameter than the rest of the nozzle) with a reasonable expectation of success because '356 demonstrates an operative ink-jet nozzle formation with such a smaller nozzle and because '803 demonstrates that nozzles provided at the ink-jet nozzle orifice are operable for ejecting the ink.

9. Claims 12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Horike '332 as applied to claims 19 and 24 above, and further in view of Iguchi (WO98/27579, hereafter '579. References made are to the English equivalent US Patent Application 2002/0009536.).

'271 and '332 are described above. '271 teaches that the ink-jet printer prints between partition walls (banks). (Fig. 1; [0044]-[0050]), but the references do not explicitly teach applying the liquid while a contact element of the nozzle contacts partition members on the substrate.

'579 teaches that when depositing electroluminescent material between partition walls of EL displays ([0001]-[0003]), it is desirable to maintain a constant distance between the substrate and the nozzles, and that such distance may be maintained by an element in contact with the partitions ([0246]-[0249]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a contact element in contact with the partition walls in order to have maintained a constant distance between the nozzle and the substrate during the coating process.

10. Claims 26 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Horike '332 as applied to claim 6 above, and further in view of Kurosawa et al. (U.S. Patent 6,057,647, hereafter '647).

'271 and '332 are discussed above. '271 teaches that the EL elements may be deposited on top of thin film transistor (TFT) elements ([0015], [0134], [0138]) and teaches that the EL elements may be formed by forming pixel electrodes on a substrate and forming a bank overlapping the edges of the pixel electrodes on the pixel electrodes, as discussed above. '271 does not explicitly teach that a TFT is formed on a substrate, an insulating film is formed on the TFT, and the pixel electrodes (and then banks) are formed on the insulating film.

'647 teaches a method of depositing EL elements onto TFTs, in which TFTs (2, 3) are formed on substrate (31) and then insulating layer (52) is formed on the TFTs, followed by the anode (161) (as the pixel electrodes of '271) are anodes and partitions (63) (Fig. 14, col. 11, lines 1-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the configuration of '647 as the particular configuration to integrate the EL elements of '271 with the TFTs of '271 with a reasonable expectation of success because '647 teaches that that configuration is an operative method of using TFTs in conjunction with EL elements.

Claims 28-29: See discussion of claims 10-11, above.

11. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Horike '332 and further in view of Kurosawa '647 as applied to claim 26 above, and further in view of Fujimura '803 as applied to claim 7, above.

12. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Horike '332 and further in view of Kurosawa '647 as applied to claim 26 above, and further in view of Iguchi '579 as applied to claim 12, above.

### *Response to Arguments*

13. Applicant's arguments filed 1/3/2003 have been fully considered but they are not persuasive.

Applicant argues that the cited prior art does not teach the use of ultrasonic oscillations. The argument is unconvincing in view of newly cited Horike '332.

Applicant argues that they do not believe Iguchi discloses a contact element of the nozzle with the bank. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Iguchi clearly teaches contact elements [0249].

### *Conclusion*

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (703) 308-2331. The examiner can normally be reached on 9-5:30 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-3186 for regular communications and (703) 306-3186 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



MBC

February 25, 2003



SHRIVE P. BECK  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700